

Infrastructure Engineering Graduate Research Conference (IEGRC) 2023

Theme: Transforming Infrastructure: Innovation, Sustainability, and Resilience

| Start | Finish | 24th October 2023, Rydges Melbourne | | | | |
|---------------------|----------|---|--|--|--|--|
| 8:00 AM | 8:20 AM | Attendees Arrival and Registration | | | | |
| 8:20 AM | 9:05 AM | <p>Conference Opening Ceremony (Center Stage 1)</p> <p style="text-align: center;">Host: Ms Isuri Amarasinghe President, Graduate Infrastructure Engineering Society</p> <p style="text-align: center;">Welcome Message</p> <p style="text-align: center;">Professor Andrew Western Head of Department of Infrastructure Engineering</p> <p style="text-align: center;">Opening Address</p> <p style="text-align: center;">Professor Joe Klewicki Head of School, Electrical, Mechanical & Infrastructure Engineering, University of Melbourne</p> <p style="text-align: center;">A/ Professor Ranjith Unnithan Assistant Dean (Graduate Research - Experience), University of Melbourne</p> | | | | |
| 9:05 AM | 9:25 AM | <p style="text-align: center;">Keynote Address (Center Stage 1)</p> <p style="text-align: center;">Topic: Resilience and Sustainability in Infrastructure Engineering: A Supply Chain Perspective</p> <p style="text-align: center;">Dr Frank Lai Global Head of Sustainability at State of Flux</p> <p style="text-align: center;">Host: Ms Isuri Amarasinghe</p> <p style="text-align: center;">Token of Appreciation awarded by: A/ Professor Ranjith Unnithan</p> | | | | |
| 9:25 AM | 9:45 AM | <p style="text-align: center;">Keynote Address (Center Stage 1)</p> <p style="text-align: center;">Topic: Recycled Plastic for Innovative Concrete Solutions</p> <p style="text-align: center;">Dr Jessy Lee Senior Lecturer, Swinburne University of Technology, Deputy Chair, Civil and Construction Engineering</p> <p style="text-align: center;">Host: Ms Isuri Amarasinghe</p> <p style="text-align: center;">Token of Appreciation awarded by: Professor Andrew Western</p> | | | | |
| 9:45 AM | 10:15 AM | Group Photo and Morning Tea (Center Stage 2 and Meeting Place Foyer) | | | | |
| 10:15 AM – 12:15 PM | | Morning Parallel Sessions | | | | |
| | | Forum 1 (Center Stage 1) Structural Engineering Chair: Dr Philip Christopher | Forum 2 (Meeting Place 1) Geomatics Chair: Dr Chiranjibi Sitaula | Forum 3 (Meeting Place 2) Geotechnical Engineering Chair: Dr Luis Antonio | Forum 4 (Meeting Place 3) Transport Chair: Dr Saeed Asadi Bagloee | Forum 5 (Meeting Place 4) Environmental, Hydrology & Water Resources Chair: Dr Keirnan Fowler |
| 10:15 AM | 10:25 AM | <i>Recycled Timber in Engineered Wood Panels: A Multi-scale Modeling Approach</i> Isuri Amarasinghe | <i>Automated delineation of the agricultural fields under incomplete supervision using remote sensing images</i> Sumesh K C | <i>Network analysis of general-shape granular materials</i> Jie Qi | <i>Identification of choice models</i> Amir Ghorbani | <i>Simulating the Backscattering of L-band Synthetic Aperture Radar from a Wheat Field</i> Lilangi Wijesinghe |

| | | | | | | |
|----------|----------|--|--|---|--|---|
| 10:25 AM | 10:35 AM | Numerical analysis of stub SR-CFST columns with high-strength materials under fire conditions <i>David Medall Martos</i> | CNNs for Remote Extraction of Urban Features: A Survey-Driven Benchmarking <i>Bipul Neupane</i> | Heat transfer behaviors of backfill at particle scale <i>Tairu Chen</i> | Examining the Drivers of Travel Time Use and the Transferability of Activities into Trips <i>Ana Luiza Santos de Sa</i> | Adaptive Reservoir Operation Policies: Managing Reservoirs in a Changing World <i>Jiajia Huang</i> |
| 10:35 AM | 10:45 AM | Conversion of Existing Mega Scale LNG Storage Compartments into Liquid Hydrogen Storages <i>Udagedara Amila Kanchana Premakumara</i> | Offset-based Marker Placement for BIM Alignment in Mixed Reality <i>Sajjad Einizinab</i> | Centrifuge modelling of helical anchor installation <i>Zeliang Li</i> | ETA Prediction for PI-Hubs <i>Anshul Vijay</i> | The variability of evaporative fraction regimes over cropland <i>Jia Xu</i> |
| 10:45 AM | 10:55 AM | Inter-module Connection for Modular Tall Buildings <i>Arjun Kandel</i> | A 3D Cadastral Database Management System - Design and Development <i>Javad Shahidinejad</i> | Geothermal - based hydrogen production <i>Maryam Hamlehdar</i> | No-show classification for loading dock bookings <i>Hatef Sadeghi</i> | Enhancing Floodplain Management with Nature-based Solutions: Overcoming Barriers and Harnessing Enablers <i>Nikita Christopher</i> |
| 10:55 AM | 11:05 AM | Pullout Tests of Grout Tube Connections in Limited Ductile Precast Reinforced Concrete Walls: Preliminary Analyses <i>Xiangzhe Weng</i> | How can a disaster disrupt the policies for IUS? <i>Ricardo Camacho Castilla</i> | Spatial thermo-hydrogeological act on energy piles <i>Qusi Ibrahim Ahmad Alqawasmeh</i> | AI-based Traffic Acoustic Data Analysis <i>Hossein Parineh</i> | Needle nutrient assessment with hyperspectral imagery <i>Peiye Li</i> |
| 11:05 AM | 11:15 AM | Macro Modelling of Buildings for Seismic Performance Evaluation <i>Deelaka Sathsara Jayaweerasathne</i> | Digitisation of Repairs and Maintenance in Residential Apartment Developments (VIC): IFC/COBie and the value of extending 'BIM' into Operations <i>Karen Tanfield</i> | Thermo-mechanical study of energy tunnels <i>Xiangdong Dai</i> | Investigation on the effects of road pricing on safety <i>Humberto Barrera-Jimenez</i> | Design rainfalls in a warming world <i>Jayaweera Muhandiramge Lalani Madhushankha</i> |
| 11:15 AM | 11:25 AM | Robustness analysis for composite modular buildings <i>Gaurav Swami</i> | Automated land valuation models using machine learning and deep learning <i>Peyman Jafary</i> | Forecasting Offshore Turbidity Currents Using Deep Learning Models: CFD and Deep Learning <i>Farid Fazel Mojtahedi</i> | Temporal Pattern Mining of Urban Traffic Data <i>Iman Taheri Sarteshnizi</i> | Using experimental systems to study population dynamics in dendritic networks <i>Yiwen Xu</i> |
| 11:25 AM | 11:35 AM | Connecting the Micro-Mechanical Properties of Cement Hydrated Phases with Nano-indentation data <i>Anuradha Silva</i> | Urban Forest characterisation using MLS Point Cloud Data through Deep Learning <i>Aditya</i> | A Novel Hybrid Foundation for Offshore Wind Development <i>Behnam Norouzi</i> | Enabling Sustainable Late-Mile Distribution through the Implementation of Transportation Modeling <i>Masoud Kahalimoghdam</i> | Community representation in water policy <i>Madeline Grupper</i> |
| 11:35 AM | 11:45 AM | Effect of Graphene Oxide on Mechanical Properties and Durability of High-Performance Concrete <i>Thusitha Ginigaddara Appuhamilage</i> | Learn to Generate Synthetic Road Scene Lidar Data <i>Zhengkang Xiang</i> | Ravelling Performance of Waste Tyre Permeable Pavement <i>Abbas Rezamand</i> | Public transport passengers' arrival rate: a deep learning model leveraging multi-source data fusion <i>Mustafa Rezazada</i> | Relative performance evaluation of LiDAR and CartoDEM for surface rainwater harvesting site identification <i>Sri Priyanka Kommula</i> |
| 11:45 AM | 11:55 AM | Smart AI Enabled Robotic Technologies for Plastic Waste Sorting <i>Hasala Sakvithi Rohanawansa Pitiduwa Gamage</i> | Conceptualising Multidimensional Morphology of Urban Sprawl <i>Kriti Pradhan</i> | A Modified Advanced Soil Constitutive Model for Safety Evaluation of Roadside Barriers <i>Fatemeh Safari Honar</i> | Multi-Scale Node Neighborhood Aggregation Via Graph Coarsening and Transformer <i>Mohammadreza Ghanbari</i> | Comparing surrogate models for flood inundation <i>Niels Fraehr</i> |
| 11:55 AM | 12:05 PM | Investigation of torsion-induced seismic response amplification in plan asymmetric buildings <i>Yao Hu</i> | | | | Improving the effectiveness and efficiency of monitoring for environmental flows <i>Xiaoyan Dai</i> |
| | | | | | | |

| 12:15 PM | 1:15 PM | Lunch (Center Stage 2 and Meeting Place Foyer) | | | | |
|-------------------|---------|---|--|---|--|--|
| 1:15 PM – 3:15 PM | | Afternoon Parallel Sessions | | | | |
| | | Forum 1 (Center Stage 1) Structural Engineering Chair: Dr. Zipeng Zhang | Forum 2 (Meeting Place 1) Geomatics + Structural Engineering Chair: Dr Jude Shalitha | Forum 3 (Meeting Place 2) Geotechnical Engineering Chair: Dr Anamitra Roy | Forum 4 (Meeting Place 3) Transport + Engineering Management & Energy Chair: Dr Xuanchi Liu | Forum 5 (Meeting Place 4) Environmental, Hydrology & Water Resource + Ocean Engineering Chair: Dr Sasan Tavakoli |
| 1:15 PM | 1:25 PM | Matrix design and performance development of eco-friendly high-strength, lightweight engineered cementitious composites <i>Hongxiang Gou</i> | A Performance Approach for Placemaking in Urban Renewal Projects to Support the SDGs <i>Mark Allan</i> | Numerical modelling of drained and undrained CPT <i>Xingyi Wu</i> | Accessibility Based Rebalancing Strategies for Shared Autonomous Vehicles <i>Sapan Tiwari (Transport)</i> | Simulation of nutrient transport pathways in dairy-dominated catchments <i>Ziming He</i> |
| 1:25 PM | 1:35 PM | Enhanced acid resistance of ternary blended nano-concrete composites for sewer structures <i>Abdullah Anwar</i> | Challenges in Zero Velocity Detection using UWB sensors <i>Ashwani Kumar</i> | Numerical investigation of horizontal plate anchor capacity in dilating sand <i>Zhenyu Liu</i> | Development of n Bottom Line Assessment and Modelling Framework for Establishment of n-Tier Mesh Logistics Networks in the Metro Urban Scale <i>Simon Anthony Lorenzo (Transport)</i> | Performance evaluation of fluoride removal units <i>Akshay Kashyap</i> |
| 1:35 PM | 1:45 PM | CO2 adsorption in Graphene Oxide: A potential approach for carbon sequestration in concrete <i>Pasadi Litara Devapura</i> | Advancing Land Administration System- Implications of Global Initiatives <i>Fatemeh Jahani Chehrehbargh</i> | Effect of boundary condition on pipeline walking <i>Soumyajyoti Ghosh</i> | Suitability Analysis of Energy Allocation Methods in Apartments <i>Aravind Poshnath</i> | Decadal Cycles in Australian Annual Rainfall <i>Tobias Selkirk</i> |
| 1:45 PM | 1:55 PM | Loss Weighting Techniques for Handling Class Imbalance Issue in CNN-based Crack Segmentation <i>Quang Du Nguyen</i> | Route Instruction Validation in Indoor Environments <i>Reza Arabsheibani</i> | Drained cyclic response of plate anchor in dense sand <i>Rene Sumantri Kurniadi</i> | Optimal design of micro pumped-storage plants <i>Arezoo Boroomandnia</i> | Is behind-the-meter solar an effective way to improve water distribution system resilience? <i>Jiayu Yao</i> |
| 1:55 PM | 2:05 PM | Numerical Modelling of Liquid Hydrogen Boil-off <i>Merinnage Susiri Vidarshaka Costa</i> | Vehicle Localization with Voxel HD Map <i>Yuan Zhao</i> | Determining the Suitability of Alkali Activated Materials as Wellbore Completion Material <i>Amirthan Thirukumaran</i> | Optimal sizing of renewable energy storage: A techno-economic analysis of hydrogen and hybrid energy storage systems <i>Tay Son Le</i> | Surface soil moisture retrieval from L-band SAR data <i>Shilpa Koyyan</i> |
| 2:05 PM | 2:15 PM | Ensembled learning based damage detection of a bridge <i>Aliakbar Yaghoubzadehfard</i> | Depth-Varying Non-Uniform Corrosion in Marine Concrete Structures <i>Rishwanth Darun Annamalaisamy Sannasiraj</i> | Impact of Pit Lake Temperature Stratification on Shallow Geothermal Heat Exchange <i>Mauricio Carcamo Medel</i> | A Simplified Sustainable Circular Economy Evaluation for End-of-Life Photovoltaic <i>Emily Ruth Suyanto</i> | Utilizing remote sensing techniques to map dynamic river water quality <i>Kunwar Abhishek Singh</i> |
| 2:15 PM | 2:25 PM | Effect of Vein Graphite synthesized Graphene Oxide on the durability performance of concrete <i>Danula Udumulla</i> | A PINN Framework for Laminated Composite Plates <i>Weixi Wang (Structural)</i> | Impact of Stress State on Erodibility of Fine Particles in Internally Unstable Soils <i>Meysam Mousavi</i> | Evaluating South Korean Water Resources Decline Due to Climate Change and Estimating Potential Response Capabilities <i>Seongyeol Park</i> | An Investigation into Atmospheric Rivers in Australia <i>Sucheta Pradhan</i> |
| 2:25 PM | 2:35 PM | Visual Programming methods to optimise designs for manufacturing of Prefabricated buildings <i>Samarawickrama Kodikarage Sasindu Randil Samarawickrama</i> | Study into vehicular collision on the bridge parapet <i>Chuan Tong (Structural)</i> | Influences of fluid inertia on flow within fractures <i>Mai Cuong Bui</i> | Determinants of Workplace Risk Perception and Perceived IAQ <i>Yan Zhang</i> | The wave-induced heat transport in the global ocean <i>Rui Li (Ocean)</i> |
| 2:35 PM | 2:45 PM | AI Driven Smart Vision for Waste Plastic Sorting <i>Nuwan Dewapurage</i> | Dynamic LCA of Timber-based Buildings <i>Yi Qian (Structural)</i> | Fluid inertia effect on flow through fracture intersections <i>Edirisinghe Appuhamilage Amila Vimukthi Edirisinghe</i> | | Optimizing Sea State Estimates from Vessel Motion <i>Anran Duan (Ocean)</i> |

| | | | | | | |
|---------|---------|--|--|--|---|--|
| 2:45 PM | 2:55 PM | Experimental Investigation on Impact Resistance of Concrete Barrier Strengthened with UHPFRC <i>Jie Sun</i> | Free Online Tool on Detailing of RC Wall <i>Prashidha Khatiwada (Structural)</i> | Impact of soil fabric on susceptibility of non-plastic fine particles to suffusion in gap-graded soils <i>Rohan Ramesh Dhamne</i> | | Developing Mega-Shelter on Continental Shelf <i>Wei Lin (Ocean)</i> |
| 3:15 PM | 3:45 PM | Afternoon Tea (Center Stage 2 and Meeting Place Foyer) | | | | |
| 3:45 PM | 4:00 PM | Session by FEIT Graduate Research Current Students (Center Stage 1) | | | | |
| 4:00 PM | 5:00 PM | Panel Discussion – “Engineering in a Changing World” (Center Stage 1) | | | | |
| | | Panellists: | | | | |
| | | Moderator: Mr Mark Allan Director Greenline, City of Melbourne | A/Prof Mohan Yellishett Associate Professor, Resources Engineering, Monash University | Ms. Olga Mikhaylova Engineering Manager – Tunnelling & Major Projects, CPB Contractors | Mrs. Achini Peiris Consultant, Digital Enablement, Aurecon | Mr. Simon Liley Principal Sustainability Consultant Cundall |
| 5:00 PM | 5:45 PM | Conference Closing Ceremony (Center Stage 1) | | | | |
| | | Award Ceremony & Lucky Draw | | | | |
| | | Thank you Speech Prof. Lihai Zhang Research Higher Degree Coordinator | | | | |
| 5:45 PM | 6:30 PM | Networking Session (Meeting Place Foyer) | | | | |